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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,040	07/08/2003	David W. Barenz	CRC-160/47181-00280USPT	3922
23569	7590	11/18/2005	EXAMINER	
SQUARE D COMPANY LEGAL DEPARTMENT IP SECTION 1415 SOUTH ROSELLE ROAD PALATINE, IL 60067			WILLOUGHBY, TERRENCE Ronique	
			ART UNIT	PAPER NUMBER
			2836	

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/615,040

Applicant(s)

BARENZ, DAVID W.

Examiner

Terrence R. Willoughby

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/9/03, 1/18/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,2,6,7,10,12-16,19,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batteux et al. (US 5,831,499) and in view of Ulerich et al. (US 6,433,290).

With respect to claim 1, Batteux et al. teaches the claimed said trip assembly (Fig. 1, 10) for interrupting the flow of current upon the detection of excess current in a circuit breaker (Column 2, lines 30-43), the trip assembly (Fig. 1, 10) comprising: a trip bar (Fig. 5, 14) including a trip finger (Fig.5, 66); a stationary armature bracket (Fig. 5, 34) including a base portion (Fig. 5, 32) and a spring-support portion (Fig. 6, elements 38 and 32, Column 3, lines 2-4) a movable armature (Fig. 5, 22) including a first end, and a trip-actuating surface (Fig.5, 64), said first end of said movable armature (Fig. 5, 22) being coupled to said base portion (Fig. 5, 32) of said armature bracket (Fig. 5, 34), said trip-actuating surface (Fig.5, 64) being disposed proximate said trip finger (Fig.5, 66); and a spring (Fig. 5, 36) directly coupled at its respective ends to said spring-support portion (Fig. 6, elements 38 and 32, Column 3, lines 2-4) of said armature

bracket (Fig. 5, 34) and said movable armature (Fig. 5, 22). Batteux et al. lacks a spring tab, which is couple to the spring and part of the movable armature. However, Ulerich et al. teaches using a spring tab (Fig. 7, 52) for a circuit breaker and a latch mechanism mounted on a base. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a spring tab taught by Ulerich et al. to the armature bracket taught by Batteux et al. to secure the spring in place.

With respect to claim 2, Batteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 1. Batteux et al. discloses the trip finger has a rolled contract edge (Fig. 5, 64).

With respect to claim 6, Batteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 1. Batteux et al. discloses the spring (Fig. 5, 36) is inclined at an angle relative to a vertical axis (Fig. 8) of said armature bracket (Fig. 8, 34) perpendicular (Column 3, lines 47-51) to said base portion (Fig. 5, 32) of said armature bracket (Fig. 5, 34).

With respect to claim 7, Batteux et al. in view of Ulerich et al. discloses the claimed invention as mentioned above in claim 6, except for the alpha angle being approximately 17 degrees. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose this value base on a predetermined biasing force of the movable bracket and tension spring, since it has

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been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2c 272, 205 USPQ 215 (CCPA 1980).

With respect to claim 10, Batteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 1. Batteux et al. discloses an armature bracket (Fig. 5, 34); said movable armature (Fig. 5, 22); said spring tab (Ulerich et al., Fig. 7, 52) of movable armature (Fig. 5, 22). Batteux et al. lacks the claimed said stop tab for holding said movable armature in a default position. However, Ulerich et al. teaches the claimed said stop tab (Column 7, lines 1-3) for a latching mechanism within a circuit breaker. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a stop tab taught by Ulerich et. al. to the armature bracket taught by Batteux et al. to hold the movable armature in place while it is in the default stage or open position.

With respect to claim 12, Batteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 1. Batteux et al. discloses a movable armature (Fig. 5, 22) but does not teach a plurality of cutouts. However, it is well known in the art to use a plurality of cutouts in the movable armature to reduce the amount of weight or mass of the trip-assembly.

With respect to claim 13, Batteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 1. Ulerich et al. discloses a first spring having a first-spring

selected to cause a tripping action in a circuit breaker having a first current rating (Column 4, lines 26-35); and a second spring having a second-spring constant selected to cause a tripping action in a circuit breaker having a second current rating (Column 5, lines 14-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a first and second spring constant taught by Ulerich et. al. to the trip assembly taught by Batteux et al. to provide a constant biasing spring such that as the armature moves from its normal to its tripping position, the length of the spring remains the same.

With respect to claim 14, Batteux et al. teaches the claimed said trip assembly housing (Fig. 1, 11) comprising: inserting an armature bracket (Fig. 6, 34) into a trip-assembly housing (Fig. 1, 11), said armature bracket (Fig. 6, 34) including a base portion (Fig. 5, 32) and a spring-support portion (Fig. 6, elements 38 and 32, Column 3, lines 2-4); operatively connecting a movable armature (Fig. 6, 22) to said base portion (Fig. 6,32) of said armature bracket (Fig. 6, 34), said movable armature (Fig. 5, 22); directly coupling a first end of a spring (Fig. 6, 36) to said spring-support portion (Fig. 6, elements 38 and 32, Column 3, lines 2-4) of said armature bracket (Fig. 6,34) for exerting a direct force (Column 3, lines 38-43) on said armature bracket (Fig. 6, 34); and directly coupling a second end of said spring (Fig. 6,36) to said movable armature (Fig. 6,22) for exerting a direct force (Column 3, lines 38-43) on said movable armature (Fig. 6,22). It is well known in the art that when using a tension spring as taught by Butteux et. al. a direct force will exert on the movable armature that is connected to the movable

bracket. Batteux et al. lacks a spring tab, which is couple to the spring and part of the movable armature. However, Ulerich et al. teaches the claimed said spring tab for a circuit breaker latch mechanism (Fig. 7, 52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a spring tab taught by Ulerich et al. to the armature bracket taught by Batteux et al. to secure the spring in place.

With respect to claim 15, Batteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 14. Batteux et al. discloses the spring (Fig. 5, 36) at an angle relative to a vertical axis (Fig. 8) of said armature bracket (Fig. 8, 34), said vertical axis being substantially perpendicular (Column 3, lines 47-51) to said base portion (Fig. 5, 32) of said armature bracket (Fig. 5, 34).

With respect to claim 16, please see the recited method for rejection as mentioned above in claim 7.

With respect to claim 19, Batteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 14. Ulerich et al. discloses a stop tab (Fig. 6, 124) but does not teach the armature bracket. However, Batteux et al. discloses an armature bracket (Fig. 6, 34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a stop tab taught by Ulerich et al. to limit the movement

of the movable armature taught by Batteux et al. to a predetermined point away from the armature bracket.

With respect to claim 20, Batteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 14. Ulerich et al. discloses a spring to be first spring having a first-spring constant for causing a tripping action in a circuit breaker having a first current rating (Column 4, lines 26-35); or selecting a said a spring to be a second spring having a second-spring constant for causing a tripping action in a circuit breaker having a second current rating (Column 5, lines 14-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a first and second spring constant taught by Ulerich et. al. to the trip assembly taught by Batteux et al. to provide a constant biasing spring such that as the armature moves from its normal to its tripping position, the length of the spring remains the same.

3. Claims 8,9,18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batteux et al. (US 5,831,499) and in view of Ulerich et al. (US 6,433,290) and in further view of Salvati et al. (US 4,074,218).

With respect to claim 8, Batteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 1. Batteux et al. discloses a trip finger (Fig. 5, 64) is separated from said movable armature (Fig. 5, 22) by a trip-bar gap (Fig. 5, 56). Batteux et al. lacks a trip-bar gap being kept constant for a plurality of circuit breaker ratings.

However, Salvati et al. discloses a constant air gap (Column 5, lines 10) between the trip bar and movable armature. It would have been obvious to one of the ordinary skill in the art at the time the invention was made to provide a constant trip-bar gap taught by Salvati et al. between the trip bar and movable armature of Batteux et al. and Ulerich et. al. to establish a desiring rating or a plurality of circuit breaker ratings.

With respect to claim 9, Batteux et al. in view of Ulerich et al. and Salvati et al. discloses the claimed invention as mentioned above in claim 8, except for the trip-bar gap is between approximately 0.040 inches and approximately 0.050 inches. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use these chosen values for the trip-bar gap for biasing the forces of the movable armature, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, USPQ 233.

With respect to claim 18, please see the recited method for rejection as mentioned above in claim 9.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Batteux et al. (US 5,831,499) and in view of Ulerich et al. (US 6,433,290) and in further view of Dorfman (US 2,050,285).

With respect to claim 11, Batteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 1. Batteux et al. discloses a movable armature (Fig. 5, 22) being connected to said base portion (Fig. 5, 32) of said armature bracket (Fig. 5, 34). Batteux et. al lacks a rotatively movable armature. However, Dorfman discloses a rotatively movable armature in a circuit interrupter (page 8, paragraph 20, lines 12-15). It would have been obvious to one of the ordinary skill in the art to provide a rotatively movable armature taught by Dorfman to the trip assembly taught by Batteux et al. and Ulerich et al. to allow the movable armature to rotate around the base portion of the armature bracket causing the trip bar to activate the trip lever.

5. Claims 3,4,17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batteux et al. (US 5,831,499) in view of Ulerich et al. (US 6,433,290) and in further view of Heberlin, Jr. et al. (US 3,845,432).

With respect to claim 3, Butteux et al. in view of Ulerich et al. teach the claimed said trip assembly of claim 1, however does not disclose a stationary yoke separated from said movable armature by a magnetic gap, said magnetic gap being kept constant for a plurality of circuit breaker ratings. However, Heberlin, Jr. et al. discloses a stationary yoke separated from said movable armature (Abstract, lines 2-3); said magnetic gap being kept constant for a plurality of circuit breaker ratings (Column 1, 54-57). It would have be obvious to those skilled in the art at the time the invention was made to provide a stationary yoke taught by Heberlin, Jr. et al. to generate a magnetic

flux between the movable armature and the magnetic gap taught by Batteux et al. and Ulerich et al.

With respect to claim 4, Batteux et al. in view of Ulerich et al. and Heberlin, Jr. et al. teach the trip assembly of claim 3. Batteux et al. discloses the trip assembly with a movable armature by a magnetic gap. Ulerich et al. discloses a spring and stop tab for the circuit breaker with a latching mechanism. Heberlin, Jr. et al. discloses a stationary yoke from said movable armature (Abstract, lines 2-3). All three of these references do not teach a magnetic gap between approximately 0.085 inches and approximately 0.095 inches. It would have been obvious to one having skill in the art at the time the invention was made to use these chosen values base on the desired tripping characteristics of one skilled in the art since it has been held that where the general conditions of claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 102 USPQ 233.

With respect to claim 17, please see the recited method for rejection as mentioned above in claim 4.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Batteux et al. (US 5,831,499) in view of Ulerich et al. (US 6,433,290) and Heberlin, Jr. et al. (US 3,845,432) and in further view of Richard et al. (US 6,218,920).

With respect to claim 5, Butteux et al. in view of Herberlin, Jr. et al. teach the claimed said trip assembly (Butteux et al., Fig.1, 10) and movable armature (Butteux, et al., Fig. 5, 22) and stationary yoke (Heberlin, Jr, Abstract, lines 2-3), but lacks two yoke surfaces, each of said yoke surfaces being aligned with respective ones of the two armature surfaces. However, Richard et al. teaches the said two yoke surfaces, each of said yoke surfaces being aligned with respective ones of the two armature surfaces (Column 4, lines 3-7 and lines 32-37). It would have been obvious to one of the ordinary skill in the art at the time the invention was made to provide two yoke surfaces, each of said yoke surfaces being aligned with respective ones of the two armature surfaces taught by Richard et al. to generate several different current levels or ratings that is required to trip the circuit breaker by adjusting the position of the movable armature relative to the stationary yoke taught by Butteux et al. and Herberlin et al. allowing different occupying spaces between the two yoke surfaces.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrence R. Willoughby whose telephone number is 571-272-2725. The examiner can normally be reached on 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRW

A handwritten signature in black ink, appearing to read 'Phuong T. Vu', with a long horizontal flourish extending to the right.

PHUONG T. VU
PRIMARY EXAMINER